

AMENDMENTS TO THE DRAWINGS:

The attached 9 sheets of drawings includes changes to Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11a, 11b, 12, 13a, 13b, 14, 15a, 15b, 16, 17a, 17b, 18, 19a, 19b, 20 and 22a. These sheets replace the original sheets including the same Figures.

Figure 1 has been amended to remove the numeral "2" and associated lead line and to add another numeral "4" and corresponding lead line;

Figure 2 has been amended to add the numeral "1" and a corresponding lead line, and to add further numerals "4" and corresponding lead lines;

Figure 3 has been amended to clarify the relationship between the magnets 4 and the lower and upper rings, 5, 6 by identifying each part separately and by adding the numerals "1", "5", and "6" together with corresponding lead lines, and to add additional numerals "4" with corresponding lead lines, and to correct the lead line for the lower numeral "4";

Figure 4 has been amended to add another lead line in association with numeral "4";

Figure 5 has been amended to clarify the relationship between the magnets 4 and the lower and upper rings, 5, 6 by identifying each part separately and by adding the numerals "1", "5", and "6" together with corresponding lead lines, and to

additional numeral "4" lead lines, and to correct the lead line for the lower numeral "4";

Figure 6 has been amended to clarify the relationship between the magnets 4 and the lower and upper rings, 5, 6 by identifying each part separately and by adding the numerals "1", "5", and "6" together with corresponding lead lines, and to add additional numeral "4" lead lines;

Figure 7 has been amended to add the numerals "2", "4", and "5" together with corresponding lead lines;

Figure 8 has been amended to add the numerals "1", and "5" together with corresponding lead lines;

Figure 9 has been amended to add another lead line for numeral "4" and to correct the lead line for numerals "2" and "5";

Figure 10 has been amended to add additional lead lines for the numerals "4" and to add numerals "1", "5", and "6" together with corresponding lead lines;

Figure 11a has been amended to add additional lead lines for the numerals "4" and to correct the lead lines for numerals "2" and "5";

Figure 11b has been amended to correct the lead line for numeral "6";

Figure 12 has been amended to add the numerals "1", "4", "5", and "6" together with corresponding lead lines;

Figure 13a has been amended to add additional lead lines for the numerals "4" and to correct the lead lines for numerals "2" and "5";

Figure 13b has been amended to correct the lead line for numeral "6";

Figure 14 has been amended to add the numerals "1", "4", "5", and "6" together with corresponding lead lines;

Figure 15a has been amended to add additional lead lines for the numerals "4" and to correct the lead lines for numerals "2" and "5";

Figure 15b has been amended to correct the lead line for numeral "6";

Figure 16 has been amended to add the numerals "1", "4", "5", and "6" together with corresponding lead lines;

Figure 17a has been amended to add additional lead lines for the numerals "4" and to correct the lead lines for numerals "2" and "5";

Figure 17b has been amended to correct the lead line for numeral "6";

Figure 18 has been amended to add the numerals "1", "4", "5", and "6" together with corresponding lead lines;

Figure 19a has been amended to add numeral "2" together with a corresponding lead line;

Figure 19b has been amended to correct the lead line for numeral "6";

Figure 20 has been amended to remove the numeral "6" together with corresponding lead line; and

Figure 22a has been amended to add numeral "2" together with a corresponding lead line.

Attachment: 9 Replacement Sheets

REMARKS

The application has been amended and is believed to be in condition for allowance.

To aid in more easily understanding the drawings, the drawing figures have been amended.

Figure 1 has been amended to remove the numeral "2" and associated lead line and to add another numeral "4" and corresponding lead line;

Figure 2 has been amended to add the numeral "1" and a corresponding lead line, and to add further numerals "4" and corresponding lead lines;

Figure 3 has been amended to clarify the relationship between the magnets 4 and the lower and upper rings, 5, 6 by identifying each part separately and by adding the numerals "1", "5", and "6" together with corresponding lead lines, and to add additional numerals "4" with corresponding lead lines, and to correct the lead line for the lower numeral "4";

Figure 4 has been amended to add another lead line in association with numeral "4";

Figure 5 has been amended to clarify the relationship between the magnets 4 and the lower and upper rings, 5, 6 by identifying each part separately and by adding the numerals "1", "5", and "6" together with corresponding lead lines, and to additional numeral "4" lead lines, and to correct the lead line for the lower numeral "4";

Figure 6 has been amended to clarify the relationship between the magnets 4 and the lower and upper rings, 5, 6 by identifying each part separately and by adding the numerals "1", "5", and "6" together with corresponding lead lines, and to add additional numeral "4" lead lines;

Figure 7 has been amended to add the numerals "2", "4", and "5" together with corresponding lead lines;

Figure 8 has been amended to add the numerals "1", and "5" together with corresponding lead lines;

Figure 9 has been amended to add another lead line for numeral "4" and to correct the lead line for numerals "2" and "5";

Figure 10 has been amended to add additional lead lines for the numerals "4" and to add numerals "1", "5", and "6" together with corresponding lead lines;

Figure 11a has been amended to add additional lead lines for the numerals "4" and to correct the lead lines for numerals "2" and "5";

Figure 11b has been amended to correct the lead line for numeral "6";

Figure 12 has been amended to add the numerals "1", "4", "5", and "6" together with corresponding lead lines;

Figure 13a has been amended to add additional lead lines for the numerals "4" and to correct the lead lines for numerals "2" and "5";

Figure 13b has been amended to correct the lead line for numeral "6";

Figure 14 has been amended to add the numerals "1", "4", "5", and "6" together with corresponding lead lines;

Figure 15a has been amended to add additional lead lines for the numerals "4" and to correct the lead lines for numerals "2" and "5";

Figure 15b has been amended to correct the lead line for numeral "6";

Figure 16 has been amended to add the numerals "1", "4", "5", and "6" together with corresponding lead lines;

Figure 17a has been amended to add additional lead lines for the numerals "4" and to correct the lead lines for numerals "2" and "5";

Figure 17b has been amended to correct the lead line for numeral "6";

Figure 18 has been amended to add the numerals "1", "4", "5", and "6" together with corresponding lead lines;

Figure 19a has been amended to add numeral "2" together with a corresponding lead line;

Figure 19b has been amended to correct the lead line for numeral "6";

Figure 20 has been amended to remove the numeral "6" together with corresponding lead line; and

Figure 22a has been amended to add numeral "2" together with a corresponding lead line.

Prior to the next Official Action, an interview is requested.

Claims 19-21 are new and read on the elected embodiment of Figures 4-6.

Request for Rejoinder

Claims 7-12 and 14-16 were withdrawn.

Rejoinder and examination of these claims are respectfully requested. The Official Action stated that although applicant had indicated that these claims read on the elected species, Species III of Figures 4-6, "the examiner found that they read on other Species, not the elected one."

The issue as to whether the claims were properly withdrawn turns on whether the claims read on the elected Species, and not on whether the claims read on the non-elected Species. The first part of this last statement is relevant to the issue at hand, i.e., do the withdrawn claims read on the elected Species of Figures 4-6.

Claims 7-12 and 14-16 all read on Figures 4-6 and therefore have been improperly withdrawn. The Official Action makes no analysis as to why claims 7-12 and 14-16 are believed not to read on Figures 4-6. Claims read on the elected embodiment as long as they recite structure found in Figures 4-6 plus other structure. That is to say, the claims read on the

elected embodiment as long as there are no recitations which exclude the elected embodiment. The Official Action has not identified what recitations of claims 7-12 and 14-16 that exclude the elected embodiment of Figures 4-6.

Reconsideration, rejoiner, and examination of claims 7-12 and 14-16 are respectfully requested.

Formal Matters

Claims 1-6, 13 and 17 were rejected under section 112, 1st paragraph as failing to comply with the enablement requirement. The Official Action stated that the claims contain subject matter not described in the specification so as to enable one skilled in the art to make and/or use the invention. Specifically, the Official Action states that the recited "fuel inlet, fuel outlet, the wall in correspondence of the inlet, the central cylindrical hub, the 'obliged' path having a shape that ensures a long passage of the fuel within the device" are all not shown or described.

Applicant respectfully disagrees. See specification page 5, "Observing the enclosed figures, ... a cylindrical space is realized delimited by the walls and a central cylinder. Within said space a septum 2 is provided in correspondence of the entrance (indicated by arrow A) of the fluid fuel, obliging the latter to cover the duct between walls and cylindrical hub within which the magnetic field is created." and "while in the embodiment shown in figures 4 - 6 are comprised of two opposed

rings made up of ferromagnetic material, on which permanent magnets 4 are mounted, having a cylindrical integral tablet shape or a ring shape. Ring magnets and magnet bearing ferromagnetic rings are spaced in such a way to allow the fuel flowing through the duct inside the device, defined by their surface faced toward the inside of the box 1 and by the walls of the same box, and respectively placed on the bottom (lower ring) 5 and under the lid (upper ring) 6 on the cylinder placed at the centre of the device box 1, that can be comprised of the same material of the box, or partially comprised of ferromagnetic material, or of other material."

Taking the application as a whole, one of skill would be able to make and/or use the invention as recited. Withdrawal of the rejection is therefore solicited.

Claims 1-6, 13 and 17 were rejected under section 112, second paragraph, as indefinite.

The claims have been amended to remedy the stated basis of rejection.

The drawings were objected to for not showing the recited "fuel inlet, fuel outlet, the wall in correspondence of the inlet, the central cylindrical hub, the 'obliged' path having a shape that ensures a long passage of the fuel within the device".

As amended, the claims are illustrated by the drawings. Withdrawal of the objection is therefore solicited.

Substantive Rejections

Claims 1-4, 13 and 17 were rejected as anticipated by JOHNSTON 5,055,188.

Claim 5 was rejected as obvious in further view of COX 6,178,953.

Claim 6 was rejected as obvious in further view of SACS 6,849,188.

Claim 7 was rejected as obvious in further view of SACS or TWARDZIK 5,558,765.

As to each of the substantive rejections, applicant respectfully disagrees.

Attention is directed to JOHNSTON column 2, lines 39-53 which is reproduced below (emphasis added):

"The applicant has discovered that the length of exposure of the Protista to the magnetic field, its strength and the rate of flow of the distillates containing Protista through the field are all factors relevant to the efficiency of the invention. The applicant has discovered that of prime importance is the entry and re-entry of the distillate into the, or several, magnetic fields. In order to achieve this, a series of magnets are used in connection with the fluid flow, configured to achieve a multi-pass system which is characterized in that the liquid flows in and around an array of magnets and baffles, thereby increasing the duration of the fluid flow contact with the

magnetic field. Thus, by an apparatus of relatively simple construction, the efficiency of the magnetic field is enhanced."

In contrast, the present invention obtains an enhanced separation of impurities present in the diesel fuel, not only by considering the strength of the magnetic field and the time during which the fuel is subject to such a field, but also the turbulence of the flow of the fuel passing through the device.

JOHNSTON makes no teaching of this important feature of the invention.

Only the present invention teaches a one-pass system wherein the fuel flows inside a magnetic field and is deviated by a wall that makes the flow turbulent. Only the present invention teaches providing additional elements to promote the turbulence of the flow, e.g., the present invention provides a passage through the magnetic field which has substantially the same size and transversal section of the conduits of the fuel feeding line.

Thus, as a result of the invention, the fuel flow is not partitioned in different flows, subjected to multiple passages through the magnetic field, and undergoing consequent pressure drops, as is inevitable in the JOHNSTON device.

Still further, the solution according to the present invention allows for the positioning of the inventive device in any direction along the fuel feeding line, i.e., its inlet and outlet openings are interchangeable. The inlet and outlet openings of JOHNSTON are not interchangeable.

Attention is directed to page 5 of the specification. There is disclosed that the invention provides a box 1 (Figure 7, etc.) delimiting, with walls and a central cylinder, a cylindrical space, within which space a septum 2 is provided in correspondence of the entrance (indicated by arrow A of figures 7, 9, etc.) of the fluid fuel. The septum obliges (causes) the fuel to cover the duct between the walls and the cylindrical hub within which the magnetic field.

The invention provides, as illustrated by the drawing figures, magnets having innovative shape and positioning.

Magnets of the non-elected embodiment of Figures 1 - 3 and 7 - 8 are comprised of two ring shaped permanent magnets 4, opposed each other. In the elected embodiment shown in Figures 4 - 6, there are two opposed rings made up of ferromagnetic material, on which permanent magnets 4 are mounted, having a ring shape.

In the elected embodiment, magnets bearing ferromagnetic rings are spaced in such a way to allow the fuel inside the device, defined by their surface faced toward the inside of the box 1 and by the walls of the same box, and respectively placed on the bottom (lower ring) 5 and under the lid (upper ring) 6 on the cylinder placed at the center of the device box 1.

In the elected embodiment, beside the magnets 4, projecting metallic elements 7 may be added to further improve turbulence of the fuel.

In the elected embodiment, the ferromagnetic rings and multiple permanent magnets are provided with the permanent magnets having a cylindrical tablet or ring shape, with north and south polarity on the full opposed faces of the same ring, having such dimensions to be mounted on the ferromagnetic rings along a single or more rows. Where multiple permanent magnets are provided, magnets are fixed on the rings and provided according to a simple or multiple circle, with the same magnetic polarity faced toward the surface of each ring.

As it is well evident, surface of the rings faced inside the duct can be slightly projecting, in order to create a turbulence in the fluid. This turbulence has a positive effect in promoting the action of the device according to the invention.

By this positioning, each one of the ferromagnetic rings becomes a single permanent magnet, faced toward the space where a single magnetic polarization flows. The magnetic rings are positioned such that the lower ring and the upper ring have opposed polarity, thus creating a high intensity uniform magnetic field within the inner space included between the rings.

The prior art, individually or in reasonable combination, does not teach the recited invention.

As to claim 1, the prior art does not teach two opposed magnetic elements located within the housing element, the two opposed magnetic elements inducing a magnetic field between the two opposed magnetic elements and along an obliged flowing fuel path between the fuel inlet and the fuel outlet, where the wall is configured to turbulently deviate fuel entering the fuel inlet around the wall and along the obliged flowing fuel path through the magnetic field induced by the two opposed magnetic elements.

As to claims 9-10, the prior art is not seen to teach or suggest that the two ferromagnetic opposed elements are comprised of rings on which the permanent magnets are provided, the rings having an opposed polarisation of the faces faced toward the obliged fuel flowing path.

As to claim 11, the prior art is not seen to teach or suggest that the permanent magnets project inwardly into the obliged fuel flowing path with respect to the two ferromagnetic opposed elements.

As to claim 12, the prior art is not seen to teach or suggest that the two ferromagnetic opposed elements each have a horseshoe shape.

As to claim 14-15, the prior art is not seen to teach or suggest turbulence-causing projecting elements projecting into the obliged flowing fuel path.

The new claims are also believed patentable in that the prior art does not teach or suggest the recited combination of

1) a housing element with a fuel inlet, a fuel outlet, walls, a cylindrical hub, and a septum located at the fuel inlet to deviate fuel entering the fuel inlet to an obliged turbulent flowing fuel path running from the fuel inlet to the fuel outlet between the walls and the cylindrical hub; and

2) two opposed magnetic elements located within the housing element and around the cylindrical hub, the two opposed magnetic elements inducing a magnetic field between the two opposed magnetic elements along the obliged turbulent flowing fuel path between the walls and the cylindrical hub.

Nor does the prior teach teach/suggest wherein, the two opposed magnetic elements further comprise turbulence projecting elements that extend into the obliged turbulent flowing fuel path, or wherein, the two opposed magnetic elements each comprise a ferromagnetic ring mounting permanent magnets, the magnets extending into the obliged turbulent flowing fuel path.

For all these reasons, the claims are believed patentable.

Reconsideration and allowance of all the claims are respectfully requested.

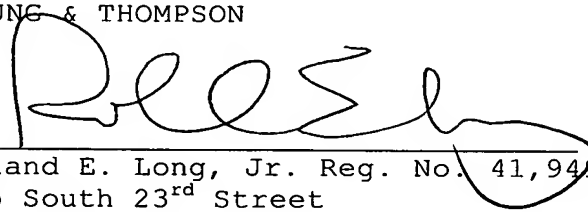
Should there be any matters that need to be resolved in the present application; the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional
fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

A handwritten signature in black ink, appearing to read 'Roland E. Long, Jr.', written over a horizontal line.

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REL/mjr

APPENDIX:

The Appendix includes the following item(s):

- Nine Replacement Drawing Sheets